

**ABSTRACT**

A method and system for physiological gating is disclosed. A method and system for detecting and predictably estimating regular cycles of physiological activity or movements is disclosed. Another disclosed aspect of the invention is directed to predictive actuation of gating system components. Yet another disclosed aspect of the invention is directed to physiological gating of radiation treatment based upon the phase of the physiological activity. Gating can be performed, either prospectively or retrospectively, to any type of procedure, including radiation therapy or imaging, or other types of medical devices and procedures such as PET, MRI, SPECT, and CT scans.

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